

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANNY E. SCOTT, JAMES L. OVERSTREET,
and ANTON F. ZAHRADNIK

Appeal No. 2001-0573
Application No. 08/638,245

ON BRIEF

Before ABRAMS, FRANKFORT, and BAHR, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 9 and 14 through 17, which are all of the claims remaining in this application. Claims 10 through 13 have been canceled.

Appeal No. 2001-0573
Application No. 08/638,245

Appellants' invention relates to a method of manufacturing a cutter for an earth boring drill bit wherein the cutter has an improved steel-tooth structure with added toughness in the area of each tooth which is most prone to cracking and brittleness, i.e., most preferably, at the relatively sharp corner regions (51, 53, 55, 57) of the cutter teeth near the base or root of each tooth at the intersection of the tooth flanks and the ends of the teeth. Independent claims 1, 5 and 14 are representative of the subject matter on appeal and a copy of those claims may be found in Appendix I of appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims under 35 U.S.C. § 103 are:

Scales et al. (Scales)	3,913,988	Oct. 21, 1975
Peck	3,923,348	Dec. 2, 1975
Scott et al. (Scott)	4,726,432	Feb. 23, 1988

Appeal No. 2001-0573
Application No. 08/638,245

Claims 1 through 9 and 14 through 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Scales.¹

Claims 1, 2, 5, 6 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Scott in view of Scales.

¹ While the examiner has not specifically identified exactly what is considered to be Applicants' Admitted Prior Art (AAPA), after having reviewed the application file, we are of the opinion that the AAPA is merely a prior art cutter or steel-toothed cone like that described on page 2 and in lines 4-26 on page 3 of the specification and as generally shown in Figure 1 of the application drawings, wherein selected surfaces of each tooth have typically been hardfaced with a wear resistant material (e.g., particles of tungsten carbide dispersed in a steel or cobalt binder matrix) and the cutter thereafter carburized to create a desired case depth, and then hardened and tempered. What the AAPA does not include is any recognition of the particular problem appellants have found in such prior art steel-toothed cutters, i.e., that the carburizing treatment tends to form an excess of carbon along the relatively sharp corners defined by the intersection of the tooth flanks and the ends of the teeth in the region near the base or root of each tooth and that such undesirable concentration of carbides at such locations tends to make the teeth more brittle and more subject to fracture than the remainder of the tooth surface, thus leading to cracking and breakage of the teeth, especially with the increased wear resistance of the hardfacing deposits thereon and the longer service life of the cutter.

Appeal No. 2001-0573
Application No. 08/638,245

Claims 3, 4, 7 through 9 and 15 through 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Scott in view of Scales as applied above, and further in view of Peck.

Reference is made to the examiner's answer (Paper No. 26, mailed July 20, 2000) for the examiner's reasoning in support of the above-noted rejections. Appellants' arguments thereagainst are found in the brief (Paper No. 25, filed June 27, 2000) and reply brief (Paper No. 27, filed September 18, 2000).

OPINION

In reaching our conclusion on the obviousness issues involved in this appeal, we have carefully considered appellants' specification and claims, the applied prior art references, and the respective viewpoints advanced by appellants and the examiner. As a consequence of our review, we have made the determinations which follow.

Turning first to the examiner's rejections of claims 1 through 9 and 14 through 17 under 35 U.S.C. § 103 based on AAPA in view of Scales, and claims 1, 2, 5, 6 and 14 under 35 U.S.C.

§ 103(a) as being unpatentable over Scott in view of Scales, while it is true that Scales discloses the step of using stop-off paint (case preventative paint) on selected surfaces of the bearing section of an earth boring drill bit to protect such bearing surfaces from carburization (col. 3, lines 31-41) and specifically mentions that sharp corners should not have high surface carbon so as to minimize the generation of fatigue cracks, we share appellants' position that this teaching must be viewed in the context of the disclosure of the Scales patent's focus on the steel bearing surfaces of the journal (13) therein and not as being a teaching of general applicability to any sharp corner on an earth boring drill bit no matter where it may be located. Although Scales' earth boring drill bit includes a cone-shaped cutter (15) having teeth (17), nothing in Scales mentions or specifically suggests the use of stop-off paint on the cutter or on the teeth of the cutter. Thus, contrary to the examiner's

position (answer, pages 8-9), we do not see that Scales can be said to "clearly . . . [teach/suggest] that sharp corners of cutting teeth are high stress areas that should not have high surface carbon such that fatigue crack generation is minimized."

More specifically, we find nothing in Scales, AAPA, or Scott which addresses the specific area of the cutter teeth where appellants have discovered a problem of fatigue cracking as a result of excessive carbon build-up. Thus, nothing in the Scales patent or the other prior art applied by the examiner in any way relates to the particular problem confronted by appellants or to the results achieved by appellants' claimed method, i.e., an intentional "relatively softer" wear area provided on each of the selected teeth at the selected location which will intentionally wear away more quickly during use and thereby prevent crack formation that could lead to tooth breakage. Contrary to the examiner's assertions on page 9 of the answer that the claims on appeal do not specifically indicate what the selected regions of the

Appeal No. 2001-0573
Application No. 08/638,245

teeth are, we agree with appellants' position as set forth in the reply brief (pages 3-6).

As we see it, there is no evidence relied upon by the examiner that one of ordinary skill in the art would have recognized the particular problem or problem area confronted by appellants and therefore nothing to suggest solving such a problem in the particular manner claimed by appellants, even though the use of stop-off or case preventative paints was generally known in the art to inhibit or prevent carburization of surfaces and/or sharp corners on other drill bit structures, i.e., like the head section (11) and bearing journal (13) of Scales. In our opinion, the examiner has inappropriately employed appellants' discussion of their discovery of the source of the problem as a teaching for the proposed modification of both AAPA and Scott. That is, in searching for an incentive for modifying the prior art cutters, the examiner has impermissibly drawn from appellants' own teachings regarding the deficiencies of the prior art cutters. In this regard, it is clear that the examiner has fallen victim to what our reviewing Court has called "the

Appeal No. 2001-0573
Application No. 08/638,245

insidious effect of a hindsight syndrome wherein that which only the inventor has taught is used against its teacher." W. L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983).

Since it is our determination that the teachings and suggestions found in AAPA and Scales or in Scott and Scales would not have made the subject matter as a whole of independent claims 1, 5 and 14 on appeal obvious to one of ordinary skill in the art at the time of appellants' invention, we must refuse to sustain the examiner's rejection of those claims under 35 U.S.C.

§ 103(a). It follows that the examiner's rejection of dependent claims 2 through 4, 6 through 9 and 15 through 17 under 35 U.S.C. § 103(a) based on AAPA and Scales, and dependent claims 2 and 6 based on Scott and Scales will also not be sustained.

Regarding the examiner's rejection of dependent claims 3, 4, 7 through 9 and 15 through 17 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Scott, Scales and

Appeal No. 2001-0573
Application No. 08/638,245

Peck, we have reviewed the teachings of Peck, but find that it, like Scales, relates to the use of case preventative or stop-off paint on surface portions of the bearing structure of the drill bit and thus provides no response for the teachings and/or suggestion we have indicated above to be lacking in the basic combination of Scott and Scales. Accordingly, the examiner's rejection of dependent claims 3, 4, 7 through 9 and 15 through 17 under 35 U.S.C. § 103(a) as being unpatentable over Scott in view of Scales and Peck will likewise not be sustained.

Appeal No. 2001-0573
Application No. 08/638,245

In light of the foregoing, it is apparent that each of the rejections posited by the examiner has not been sustained and that, accordingly, the decision of the examiner to reject claims 1 through 9 and 14 through 17 under 35 U.S.C. § 103(a) is reversed.

REVERSED

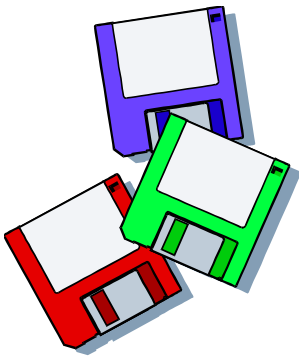
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JENNIFER D. BAHR)	
Administrative Patent Judge)	

Appeal No. 2001-0573
Application No. 08/638,245

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Appeal No. 2001-0573
Application No. 08/638,245

CHARLES D. GUNTER JR.
FELSMAN, BRADLEY, GUNTER & DILLON, LLP
201 MAIN STREET, STE. 1600
FORT WORTH, TX 76102-3105



Lesley

Appeal No. 2001-0573

Application No. 08/638,245

APJ FRANKFORT

APJ BAHR

APJ ABRAMS

DECISION: REVERSED

Prepared: June 14, 2002

Draft Final

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